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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/362,192	07/28/1999	SHUNPEI YAMAZAKI	0756-2011	6547

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EXAMINER	
SIMKOVIC, VIKTOR	
ART UNIT	PAPER NUMBER
2812	

DATE MAILED: 05/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/362,192	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Viktor Simkovic	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *45-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *45-72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *19,20* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

The IDS files on 2/11/02 and the one filed on 2/28/02 have been reviewd and considered. Signed copies are included with this office action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 45, 47, 60, 62-63, and 67-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fonash et al. in view of Makita et al.

Fonash et al. teach the method for manufacturing a semiconductor device comprising the steps of:

subjecting the semiconducting film to oxygen plasma, thereby forming a gate insulating film on said semiconducting film;

crystallizing said semiconducting film to obtain a crystalline semiconducting film. See column 3, lines 11-17, and 39-53, as well as column 4, lines 40-67. Fonash et al. fail to teach, however, the step of contacting a material for promoting crystallization to at least part of the semiconducting film formed over the substrate. Such a step is well known in the art and is taught by Makita et al., for example. Makita et al. teach

introducing a metal catalyst into the film to promote crystallization. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine this step with the step of using oxygen plasma, as the use of a metal catalyst to promote crystallization is well known, and one of ordinary skill in the art would known that combining such two steps, each of which enhances crystallization, together, would further improve the overall level of crystallization. With regard to claim 47, the crystallization is done in a solid state. With regard to claims 67-72, Makita et al. teach the use of Ni, Co, Pd, Pt, Cu, Ag, Au, In, Sb, Sn, and Al as appropriate catalysts for crystallization (see column 24, line 21).

Claims 46, 49-59, 61, 64-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fonash et al. in view of Makita et al. as applied to claim 45 above, and further in view of Miyasaka ('526). While Fonash et al. do not teach the step of crystallizing the semiconductor film with a laser light, such a step is taught by Miyasaka et al. and is in fact well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a laser to enhance crystallization, as lasers are well known in the art to promote crystallization. With regard to claim 49, Fonash et al. teach the use of helium in column 6, line 64.

Response to Arguments

Applicant's arguments filed 2/11/02 have been fully considered but they are not persuasive. Applicant argues that neither Fonash et al. nor Makita et al. suggest any

reason for combining the step of subjecting the semiconductor film to a plasma and introducing a catalyst for promoting crystallization, such that the plasma is applied after applying the catalyst and before the crystallization step. However, the examiner maintains that the plasma step is in itself a crystallization step, as it promotes crystallization. Furthermore, the transposition of process steps, where the process are identical or equivalent in terms of function, manner, and result, was held to not patentably distinguish the processes. *Ex parte Rubin* 128 USPQ 440 (PTO BdPatApp 1959). Thus a specific order of the two steps has no patentable significance. With regard to applicant's argument that neither Fonash et al. nor Makita et al. specifically mention the other step, the examiner maintains that the references must be taken collectively. The test of obviousness is not express suggestion of the claimed invention in any or all references but rather what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them. *In re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965); *In re Hedges*, 783 F.2d 1038.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Viktor Simkovic whose telephone number is 703-308-6170. The examiner can normally be reached on Mon - Fri, 9:00 - 6:00, except every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on 703-308-3325. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Viktor Simkovic
May 12, 2002

John F. Niebling
Supervisory Patent Examiner
Technology Center 2800